FORM PTO-1082

108 $850.00

Case Docket No. 831.00047

ASSISTANT COMMISSIONER FOR PATENTS
Washington, D.C. 20231

70403 U.S. PTO
02/19/97

Sir:

Transmitted herewith for filing is the patent application of:
Inventor: Roger J. Leyden and Terrance J. Surma
For: RETRACTABLE SENSOR FOR AN ALARM SYSTEM

REISSUE APPLICATION OF U.S. PATENT NO. 5,552,771

08/807120

Enclosed are:

- ☒ 3 sheets of drawing. (formal)
- ☒ An assignment of the invention to Se-Kure Controls, Inc. (copy)
- ☐ A certified copy of a _____ application.
- ☒ An associate power of attorney.
- ☐ A verified statement to establish small entity status under 37 CFR 1.9 and 37 CFR 1.27.
- ☒ Reissue Application Transmittal, Reissue Declaration..., Assent of Assignee Se-Kure Controls, Inc., Information Disclosure Statement

The filing fee has been calculated as shown below:

	(Col. 1)	(Col. 2)	SMALL ENTITY			OTHER THAN A SMALL ENTITY	
FOR:	NO. FILED	NO. EXTRA	RATE	FEE		RATE	FEE
BASIC FEE				$ 385	OR		$ 770
TOTAL CLAIMS	14 - 20 =	• 0	x 11 =		OR	x 22 =	0
INDEP. CLAIMS	4 - 3 =	• 1	x 40 =		OR	1 x 80 =	80
MULTIPLE DEPENDENT CLAIM PRESENTED			+130 =		OR	+260 =	
			TOTAL		OR	TOTAL	$850

*If the difference in Col. 1 is less than zero, enter 0 in Col. 2.

☐ Please charge my Deposit Account No. _____ the amount of $_____. A duplicate copy of this sheet is enclosed.

☒ A check in the amount of $ 850.00 to cover the filing fee is enclosed.

☒ The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 23-0785. A duplicate copy of this sheet is enclosed.

- ☒ Any additional filing fees required under 37 CFR 1.16.
- ☒ Any patent application processing fees under 37 CFR 1.17.

☒ The Commissioner is hereby authorized to charge payment of the following fees during the pendency of this application or credit any overpayment to Deposit Account No. 23-0785. A duplicate copy of this sheet is enclosed.

- ☒ Any patent application processing fees under 37 CFR 1.17.
- ☐ The issue fee set in 37 CFR 1.18 at or before mailing of the Notice of Allowance, pursuant to 37 CFR 1.311(b).
- ☒ Any filing fees under 37 CFR 1.16 for presentation of extra claims.

Respectfully submitted,

John S. Mortimer, Reg. No. 30,407

CERTIFICATE OF MAILING BY "EXPRESS MAIL"

"Express Mail" mailing label number EM258141081US
Date of Deposit February 19, 1997

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Nora T. Wesley
(Typed or printed name of person mailing paper or fee)

Nora T. Wesley
(Signature of person mailing paper or fee)

831.00047
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Application of:	)	
	)	
ROGER J. LEYDEN et al.	)	
	)	RETRACTABLE SENSOR FOR
U.S. Patent No. 5,552,771	)	AN ALARM SYSTEM
	)	
Issued September 3, 1996	)	

REISSUE APPLICATION TRANSMITTAL

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Transmitted herewith in conjunction with this application for reissuance of the above-identified U.S. Patent No. 5,552,771 (issued September 3, 1996) are the following:

(1) Specification, claims, and three (3) sheets of drawings (which are photoprints of the original drawings) pursuant to 37 CFR §§1.173-1.174.

CERTIFICATE OF MAILING BY "EXPRESS MAIL"

"Express Mail" mailing label number EM258141081US
Date of Deposit February 19, 1997

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Box Patent Application, Washington, D.C. 20231.

Nora T. Wesley
(Typed or printed name of person mailing paper or fee)

Nora T. Wesley
(Signature of person mailing paper or fee)

(2) Reissue Declaration Pursuant to 37 CFR §1.172(a), 1.175(a)(1), and §1.175(a)(3).

(3) Power of Attorney from the Inventors.

(4) A copy of an Assignment from the Inventors to Se-Kure Controls, Inc.

(5) Assent of Assignee Se-Kure Controls, Inc.

(6) Information Disclosure Statement.

(7) A check for $850.00 in payment of the filing fee pursuant to 37 CFR §§1.16(h)-(i).

Pursuant to 37 CFR §1.171, Applicants hereby offer to surrender U.S. Patent No. 5,552,771 upon allowance of this application for reissue.

Applicants further requests that the Patent and Trademark Office prepare and place in this reissue file a certified copy of an Abstract of Title or a Title Report of Patent No. 5,552,771, charging the $25.00 fee therefore to Deposit Account No. 23-0785 of the undersigned attorneys pursuant to 37 CFR §1.171.

The Commissioner is hereby authorized to charge any underpayment of any filing fees associated with this reissue application required under 37 CFR §1.16 to Deposit Account No. 23-0785.

Applicants respectfully request that the present reissue application be given a serial number and filing date and be assigned the appropriate group for examination.

Respectfully submitted,

WOOD, PHILLIPS, VAN SANTEN,
CLARK & MORTIMER

By _____
John S. Mortimer
Reg. No. 30,407

February 19, 1997

500 West Madison Street
Suite 3800
Chicago, IL 60661-2511
(312) 876-1800

CERTIFICATE OF MAILING BY "EXPRESS MAIL"

Express Mail Mailing Label Number EM258141081US

Date of Deposit February 19, 1997

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner of Patents, Washington, D.C. 20231.

Nora T. Wesley
(Typed or Printed Name of Person Mailing Paper or Fee)

Nora T. Wesley
(Signature of person mailing paper or fee)

APPLICATION FOR UNITED STATES LETTERS PATENT

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

Be it known that Roger J. Leyden

a citizen of the United States, residing at Willow Springs

in the County of Cook and State of Illinois

and Terrance J. Surma

a citizen of the United States, residing at Bloomingdale

in the County of DuPage and State of Illinois

and

a citizen of the United States, residing at

in the County of and State of

have invented a new and useful

RETRACTABLE SENSOR FOR AN ALARM SYSTEM

of which the following is a specification.

United States Patent [19]

Leyden et al.

[11] **Patent Number: 5,552,771**

[45] **Date of Patent: Sep. 3, 1996**

[54] **RETRACTABLE SENSOR FOR AN ALARM SYSTEM**

[76] Inventors: **Roger J. Leyden**, 11303 German Church Rd., Willow Springs, Ill. 60480; **Terrance J. Surma**, 265 Oxford La., Bloomingdale, Ill. 60108

[21] Appl. No.: **258,663**

[22] Filed: **Jun. 10, 1994**

[51] **Int. Cl.**[6] **G08B 13/14**

[52] **U.S. Cl.** **340/568**; 340/665; 340/548; 340/571

[58] **Field of Search** 340/568, 691, 340/651, 652, 665, 548, 571; 200/61.13, 61.93

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,616,113	10/1986	Jank	340/568
4,772,878	9/1988	Kane	340/568
4,896,140	1/1990	Biever	340/568
5,003,292	3/1991	Harding	340/568
5,072,213	12/1991	Close	340/568
5,124,685	6/1992	Rankin	340/568
5,172,098	12/1992	Leyden	340/568
5,289,559	2/1994	Wilson	340/568
5,341,124	8/1994	Leyden	340/568

Primary Examiner—John K. Peng
Assistant Examiner—Albert K. Wong
Attorney, Agent, or Firm—Wood, Phillips, VanSanten, Clark & Mortimer

[57] **ABSTRACT**

A retractable sensor assembly for use with an alarm system to prevent theft of valuable products while eliminating the problem of entangled and unsightly sensor cords is disclosed. The retractable sensor allows the user to grasp the product and pull it to a comfortable position. The invention consists of a housing, a retraction means contained in the housing, a sensor having two states, 1) secured when attached to the product and 2) unsecured when detached from the product, a multiconductor cable having a first end connected to the sensor, cooperating with the retraction means and a second end extending out of the housing, where the retraction means urges the sensor to the housing, yet allows the sensor to be pulled from the housing when an external force is exerted on the sensor, while maintaining a continuous electrical path from the first, sensor end of the cable to the second end of the cable.

11 Claims, 3 Drawing Sheets

RETRACTABLE SENSOR FOR AN ALARM SYSTEM

FIELD OF THE INVENTION

The present invention relates to security alarms and anti-theft devices and, particularly, to an improved sensor design which allows limited freedom of movement of a consumer item to which it is attached.

BACKGROUND OF THE INVENTION

In recent years, retail and wholesale merchandisers have directed substantial attention to the nagging and costly problem associated with the theft and/or damage of costly display products on their premises. With the advent of smaller and more portable electronic apparatus, the ease with which pilferers and shoplifters can quickly and easily remove such goods from display cases and display racks has intensified. At the same time, the availability of new products, such as video cassette recorders, small portable radios and televisions, calculators and the like has skyrocketed, resulting in more and more valuable products being taken or tampered with. As locks and other security devices have become more sophisticated, so too have the individuals and methods for circumventing the operation of conventional security devices and, particularly, alarm sensing devices. The alarm system described in U.S. Pat. No. 5,172,098, to Leyden, has solved many of these problems. Some products, such as remote controls, are designed to be held and moved about. A sensor which can move freely with the product for a limited distance but returns the product and sensor to a set position when not being handled by a customer is optimal.

SUMMARY OF THE INVENTION

The above invention is specifically directed to overcoming the above problems in a novel and simple manner. The invention is particularly directed to use with remote controls but is not limited to this use.

According to the present invention, a retractable sensor is provided for use with an alarm system to prevent the theft of valuable products, such as video cassette recorders, small portable radios and televisions. The retractable sensor consists of a housing, a retraction device contained in the housing, a sensor having two states, 1) secured when attached to the product and 2) unsecured when detached from the product, and a multiconductor cable with one end attached to the sensor, then extending into the housing, cooperating with the retraction device and the second end extending out of the housing, the retraction device urging the sensor to the housing, yet allowing the sensor to be pulled from the housing when an external force is exerted on the sensor while maintaining a continuous electrical path from the first end to the second end of the cable.

Preferably, the sensor has an indicating device on its housing for displaying the state of the sensor. In a highly preferred form, the indicator is a light-emitting diode.

One embodiment uses a phone cord as the multiconductor cord.

Preferably the second end of the cable contains a connecting device to mate with an alarm system, such as the alarm system described in U.S. Pat. No. 5,172,098.

A preferred form of the invention has a retraction structure consisting of a spool mounted for rotation in the housing on which the multiconductor cable is wound and a device operatively associated with the spool for urging the spool in

a direction to wind the cable onto the spool, yet permitting the unwinding of the cable when a user pulls the product, attached to the cable by the sensor, away from the housing.

With the above apparatus, the user can grasp and pull a product to a comfortable position. But if the user attempts to detach the product from the sensor, the alarm system detects this and warns the merchant.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a partial perspective view of a shelf with an electronic device thereon, a remote control for operating the electronic device and a retractable sensor according to the present invention attached to the remote control for allowing movement of the remote control from the solid position of FIG. **1** to the phantom line position;

FIG. **2** is an enlarged perspective view of the retractable sensor according to the present invention;

FIG. **3** is a top view of the retractable sensor with a remote control attached thereto and shown in phantom;

FIG. **4** is a sectional view of the retractable sensor taken along line **4—4** of FIG. **3**;

FIG. **5** is a sectional view of the retractable sensor taken along line **5—5** of FIG. **4**;

FIG. **6** is a side view of the pulley as used in the retractable sensor of the present invention;

FIG. **7** is a perspective view of an alarm system which cooperates with the retractable sensor of the present invention;

FIG. **8** is a partial schematic view of the retractable sensor showing one embodiment of the sensor; and

FIG. **9** is a schematic view of the alarm system shown in FIG. **7**

DETAILED DESCRIPTION OF THE DRAWINGS

The disclosed invention is shown as used with a remote control for an electronic device. The invention can be used with a wide variety of products and the choice of a remote control is just for convenience. It is understood that the particular product used to illustrate the invention is shown by way of example only and not as a limitation of the invention

In FIG. **1**, a typical point-of-purchase display is shown at **10** for an electronic device **12** which is operable through a portable, hand-held control **14** from a location remote from the device **12**. A display shelf **16** defines an upwardly-facing surface **18** for supporting the device **12**. The shelf **16** has a peripheral, vertically- extending edge **20** to which the remote control **14** is attached through a retractable sensor assembly **22**, according to the present invention. The retractable sensor assembly **22** is designed to allow free movement of the remote control **14** thereon from the stored/solid line position of FIG. **1**, to the phantom position in FIG. **1**, wherein it can be conveniently manipulated by the consumer.

The details of the retractable sensor assembly **22** are shown in FIGS. **2–6**. The retractable sensor assembly **22** consists of a rectangular housing **24** defined by first, and second housing parts **26**, **28** respectively. The first and second housing parts **26**, **28**, operatively connected as in FIGS. **2–4**, define an internal space **30** which contains a retraction mechanism at **32** for a multiconductor cable **34**, see FIG. **4**. A sensor **35** is connected to the cable **34** and attaches to the remote control **14**. For a description of

several methods of attaching the sensor to a product, see U.S. Pat. No. 5,172,098 which is incorporated herein by reference.

The first and second housing parts **26**, **28** are held together by a plurality of screws **36**. To facilitate anchoring of the housing **24**, flanges **38**, **40** are integrally formed thereon and have openings **42** therein to accept conventional fasteners, such as screws and nails **44** (FIG. 1).

A plurality of threaded posts **78** are provided for the screws **36** to secure the two housing parts **26**, **28**. The posts **78** are made of two halves, one half extending from housing part **26** and the other half extending from housing part **28** and meeting in the middle.

The retraction mechanism **32** has a double pulley **46**, with a top disk **48**, middle disk **50** and bottom disk **52**. The double pulley **46** has three hubs with three different radii, a sensor hub **54**, a recoil hub **56** and an alarm system hub **58**. In the preferred embodiment the radius of the alarm system hub **58** is smaller than the sensor hub **54**. The double pulley **46** has a tube **60** running through the center of the hubs **54**, **56**, **58**, as shown in FIG. **5**. The double pulley **46** rotates around a rod **62** (see FIG. **4**) which is formed by a male post **64**, attached to the housing part **28**, mating with a female post **66**, attached to the housing part **26**.

A coil spring **68** attaches to the double pulley **46** at the recoil hub **56**. In an embodiment, the coil spring **68** has a T-shaped end (not shown) which is inserted in a slot **70** in the recoil hub **56**. The end is then rotated so that it cannot be removed from the slot **70**.

The coil spring **68** sits in a circular cup **72**. The cup has an opening **74** through which the end of the coil spring **68** extends out onto the recoil hub **56**. When the coil spring **68** is placed in the cup **72**, it expands until it meets an interior surface **76** of the cup **72**, where it is held. The opening **74** is chosen so that the coil spring **68** cannot pass through the opening **74** when the sensor **35** is fully extended.

The cable **34** is continuous through the housing **24**, from the sensor **35** to a phone plug **80**. From the sensor **35** the cable **34** winds around and spirals into the sensor hub **54**. Then the cable **34** extends through a hole **82** (shown in FIGS 4–6), near the edge of sensor hub **54**, in middle disk **50** where the cable **34** winds around and spirals out from the alarm system hub **58**, and then extends out of the housing **24** to the phone plug **80**. The cable **34** is wrapped on the sensor hub **54** and the alarm system hub **58** in such a way that when the sensor **35** is pulled from the housing **24**, the cable **34** unwinds around the alarm system hub **58** (i.e. the cable **34** unwinds from the hubs **54**, **58** simultaneously). This unwinding results in the cable **34** forming a looser spiral around the alarm system hub **58**. The cable **34** is prevented from extending out towards the phone plug **80** by a U-shaped catch **84**. The catch **84** is designed so that cable **34** tightly engages the catch **84**.

The retractable sensor assembly **22** is designed to work with an alarm system **200** of FIG. **7**. The retractable sensor assembly **22** has a cable **34** that mates with a splitter box **202** of the alarm system **200**. The details of the alarm system are described in U.S. Pat. No. 5,172,098.

Each splitter box **202** can control up to six sensors **204** as best seen in FIG. **9**. The splitter boxes **202** can be daisy-chained to add additional sensors **204**. The sensors **204** can be the retractable sensor assembly **22** disclosed herein or any of the variety of sensors described in U.S. Pat. No. 5,172,098.

The alarm system **200** includes an alarm housing **210** enclosing an alarm circuit **212** having a horn **214**. A lock **216**

enables and disables the alarm circuit **212** via a key (not shown). An AC adapter **218** provides a nine-volt DC voltage from a 110 VAC source. The electrical cord **220** connects the alarm circuit **212** to the splitter box **202**. The alarm housing **210** also includes an LED **222** in addition to the horn **214** to indicate the state of the alarm circuit **212**. The electrical cord **220** may consist of a phone cord and include a connector **224** (one shown), one from the splitter box **202** and the other form the alarm circuit **212**.

FIG. **8** shows a schematic view of the sensor **35**. When the sensor **35** is adhered to the remote control **14** the button **160** is depressed as shown in FIG **8** and FIG **3**. The depression of button **160** causes a first conductor **161** to come into contact with a second conductor **163** to complete an electrical circuit. Due to the completion of the electrical circuit, a detector circuit **201**, contained in the splitter box **202** (as shown in FIG. 7), determines that the sensor **35** is attached to the remote control **14**. The detector circuit **201** is described in U.S. Pat. No. 5,172,098 which is incorporated by reference herein. The detector circuit **201** induces an electrical current to flow in one direction through indicator **164**. Since the indicator **164** has two LED's **165,167** connected in antiparallel, one of the LED's **165** is conducting and emits red light. The red light indicates the sensor **35** is in the secured state. Alternatively, when the sensor **35** is removed from the remote control, the button **160** is released and the first conductor **161** breaks contact with the second conductor **163** to break the electrical circuit. The detector circuit **201** induces an electrical current to flow in a second direction through the indicator **164**. This results in LED **167** conducting and emitting a green light, which indicates the sensor **35** is in the unsecured state.

With the above structure, it can be seen that consumers can conveniently grasp the remote control **14** and operate it in a normal manner. At the same time, the merchant is afforded the security of knowing that the remote control **14** cannot be removed from the premises. The device can be made sufficiently low in cost that it can be affordably purchased and used for even low-price remote controls.

The foregoing disclosure of specific embodiments is intended to be illustrative of the broad concepts comprehended by the invention and is not intended to limit the scope of the invention.

We claim:

1. A retractable sensor assembly, as used with an alarm system, comprising;

a housing;

means for retraction contained in said housing;

a sensor having two states, 1) secured when attached to a product and 2) unsecured when detached from said product, said sensor being outside the housing;

a multiconductor cable, having a first end attached to the sensor then extending into the housing, cooperating with the retraction means and a second end extending out of the housing;

said retraction means urging the cable into the housing and thereby urging the sensor to the retraction means, yet allowing the sensor to be pulled from the housing when an external force is exerted on the sensor, while maintaining a continuous electrical path from the first, sensor end of the cable to the second end of the cable; and

means for connecting said second end of the cable to an alarm system able to detect if said sensor is in the secured or unsecured state,

whereby a user can grasp and pull on a product attached to the sensor to place the product in a comfortable

position, but if the user detaches the product from the sensor the alarm system detects the unsecured state.

2. The retractable sensor assembly of claim 1 wherein said sensor has an indicating means for indicating the state of the sensor

3. The retractable sensor assembly of claim 2 wherein said indicating means is a light-emitting diode.

4. The retractable sensor assembly of claim 1 wherein said multiconductor cable is a phone cord.

5. The retractable sensor assembly of claim 1 wherein said retraction means includes;

a spool mounted in the housing upon which said multiconductor cable is wound; and

biasing means operatively associated with said spool in said housing for urging said spool in a direction to wind the cable on the spool, yet to permit unwinding of the cable when an external force is exerted on the sensor.

6. A retractable sensor assembly, as used with an alarm system, comprising;

a housing;

a pulley mounted for rotation in said housing, having a pair of hubs, a sensor hub and an alarm system hub, and a disk between the sensor and the alarm system hub has a hole,

a multiconductor cable wound about the sensor hub through said hole in said disk and then wound around the alarm system hub of said pulley, the cable having opposite near and remote ends;

a sensor, outside the housing, connected to the remote end of said cable and being attachable to a product, said sensor having two states, 1) secured when attached to the product and 2) unsecured when detached from the product, and the sensor including means for electrically connecting or disconnecting conductors in said cable according to the state of the sensor;

biasing means operatively associated with said pulley in said housing for urging said pulley and the pair of hubs in a direction to wind the cable around the sensor hub and thereby pull the sensor to the housing yet to permit the sensor to extend from the housing when an external force is exerted on the sensor; and

a connector, outside the housing, attached to the near end of the cable, for connecting to an alarm system.

whereby a user can grasp and pull on a product attached to the sensor to place the product in a comfortable position, but if the user detaches the product from the sensor the alarm system detects the unsecured state.

7 The retractable sensor assembly of claim **6** wherein said sensor includes a means for visually indicating whether the sensor is in the secured or unsecured state.

8. The retractable sensor assembly of claim **7** wherein said indicating means is a light-emitting diode.

9. The retractable sensor assembly of claim **6** in combination with a product and including means for attaching the sensor to the product so that the sensor is in the secured state.

10. The retractable sensor assembly of claim **9** wherein the sensor and cable are the only elements connecting between the product and housing.

11. A retractable cable assembly, as used with an alarm system, comprising;

a housing;

means for retraction contained in said housing;

a multiconductor cable, having a first end attached to a product then extending into the housing, cooperating with the retraction means and a second end extending out of the housing,

said retraction means urging the cable into the housing and thereby urging the first end connected to a product to the retraction means, yet allowing the first end to be pulled from the housing when an external force is exerted on the first end, while maintaining a continuous electrical path from the first end of the cable to the second end of the cable; and

means for connecting the second end of the cable to an alarm system which detects a) a secured state with the electrical path continuous between the first and second ends of the cable and b) an unsecured state with the continuity of the electrical path between the first and second cable ends broken.

whereby a user can grasp and pull on a product attached to the first cable end to place the product in a comfortable position, but if the user breaks the continuity of the electrical path the alarm system detects the unsecured state.

* * * * *

11. A retractable cable assembly, as used with an alarm system, comprising;

a housing;

means for retraction contained in said housing;

a multiconductor cable, having a first end attached to a sensor attachable to a product then extending into the housing, cooperating with the retraction means and a second end extending out of the housing, said sensor having two states, 1) secured when attached to the product with at least two conductors of the cable electrically connected and 2) unsecured when detached from the product with said at least two conductors electrically disconnected;

said retraction means urging the cable into the housing and thereby urging the first end connected to [a product] the sensor to the retraction means, yet allowing the first end to be pulled from the housing when an external force is exerted on the first end, while maintaining a continuous electrical path in said at least two conductors from the first end of the cable to the second end of the cable; and

means for connecting the second end of the cable to an alarm system which detects a) [a] the secured state with the [electrical path continuous between the first and second ends of the cable] at least two conductors of the cable electrically connected and b) an unsecured state with the [continuity of the electrical path between the first and second cable ends broken] at least two conductors of the cable electrically disconnected,

whereby a user can grasp and pull on a product attached to the first cable end to place the product in a comfortable position, but if the user breaks the

[continuity of the electrical path] electric connection of the at least two conductors of the cable the alarm system detects the unsecured state.

12. A retractable cable assembly, as used with an alarm system, comprising:

a housing;

a cable having first and second conductors extending between opposite first and second ends of said cable;

means for attaching said cable first end to a product;

means for electrically connecting said first and second conductors at said first end of said cable whereby 1) said first and second conductors form an alarm loop extending from said cable second end through said first conductor to said cable first end and back through said second conductor to said cable second end when said attaching means attach said cable to a product and 2) said alarm loop is broken by detaching said cable from a product;

a connector for connecting said cable second end to an alarm system responsive to any break of the alarm loop; and

a retracting mechanism in said housing continuously urging the cable first end toward the housing yet allowing the cable first end to be pulled away from the housing when an external force is exerted on the cable first end.

13. The retractable cable assembly of claim 12, wherein said retractiing mechanism continuously urges the cable first end toward the housing, whereby a user

can grasp and pull on a product attached to the cable first end to place the product in a comfortable position with a minimum amount of cable extending from said housing.

14. The retractable cable assembly of claim 13, wherein said retracting mechanism comprises:

a pulley mounted for free rotation relative to said housing and including a sensor hub and an alarm system hub separated by a disk, said disk having a hole therein, whereby said cable extends from said cable first end into said housing where it winds around said sensor hub then extends through said pulley disk hole and winds about said alarm system hub then extends from said housing to said cable second end; and

a spring continuously biasing said pulley toward winding said cable onto said sensor hub.

831.00029
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Application of:	)	
	)	
ROGER J. LEYDEN et al.	)	
	)	RETRACTABLE SENSOR FOR
U.S. Patent No. 5,552,771	)	AN ALARM SYSTEM
	)	
Issued September 3, 1996	)	

REISSUE DECLARATION
PURSUANT TO 37 C.F.R. §§1.172(a), 1.175(a)(1), AND 1.175(a)(3)

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Roger J. Leyden and Terrance J. Surma declare:

1. The residence and country of citizenship of Roger J. Leyden and Terrance J. Surma are as indicated with their signatures herebelow.

CERTIFICATE OF MAILING BY "EXPRESS MAIL"

"Express Mail" mailing label number EM258141081US
Date of Deposit February 19, 1997

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Box Patent Application, Washington, D.C. 20231.

Nora T. Wesley
(Typed or printed name of person mailing paper or fee)

Nora T. Wesley
(Signature of person mailing paper or fee)

2. We have reviewed and understand the contents of the specification of U.S. Patent No. 5,552,771, including the claims, as amended in this reissue application.

3. We believe that Roger J. Leyden and Terrance J. Surma are the original and first joint inventors of the subject matter which is claimed and for which a reissued patent is sought.

4. We acknowledge the duty to disclose to the Patent and Trademark Office all information known to us to be material to patentability as defined in 37 C.F.R. §1.56.

5. We hereby state under 37 C.F.R. §1.175(a)(1) that we believe that U.S. Patent No. 5,552,771 (hereinafter, "the '771 patent") is partly inoperative or invalid by reason of improperly claiming the invention in claim 11 using language which precisely interpreted is not supported by nor consistent with the disclosure of the invention contained in the application as originally filed.

6. Specifically, we believe that the '771 patent is partly inoperative or invalid by reason of improperly claiming the invention in claim 11 because:

a. The invention as disclosed in the application includes use of a multiconductor cable in which at least two of the conductors of the cable may be electrically connected at the cable end connected to a

product to form a closed loop or electric circuit which is used to indicate to an alarm system that a product is secured to the cable first end.

b. Claim 11 as issued in the '771 patent refers to "maintaining a continuous electrical path from the first end of the cable to the second end of the cable" and to "continuity of the electrical path between the first and second cable ends broken". Precisely interpreted, these recitations of continuity of the electrical path between the cable ends could be interpreted to refer only to continuous conductors extending from the first and second cable ends, independent of whether such multiple cables are connected or disconnected at the first end of the cable to form a loop or closed circuit.

c. Claim 11 as amended in this reissue application more precisely recites the specific structure of the invention as disclosed by referring to an electrical connection between conductors of the cable, that is, by reciting different states with 1) *at least two conductors of the cable electrically connected*, and 2) *said at least two conductors electrically disconnected*, and by further referring to the user breaking the *electric connection of the at least two conductors of the cable*.

7. With respect to the error specified in paragraphs 5 and 6 of this Declaration:

a. Upon information and belief, this error arose due to use of imprecise language regarding the continuous electrical path, and a failure of the attorney prosecuting the application to recognize that the language as presented in the claim issued as claim 11 could be read to indicate that a secured state is provided simply by continuous electric lines extending between the first and second ends of the cable, whereas in fact as disclosed the secured state might or might not be provided when electric lines extend continuously between the first and second ends of the cable, depending upon whether or not the sensor connects those electric lines at the first end of the cable.

b. This error also occurred because the undersigned inventors similarly failed to recognize and appreciate, both when reviewing the application prior to filing in connection with signing the Declaration therefor as well as when assisting the attorney during prosecution, that the coverage of the claims being presented might be read to indicate that a secured state is provided simply by continuous electric lines extending between the first and second ends of the cable.

c. This error continued to go uncorrected until the filing of this reissue application because no one's attention was drawn to this point until shortly before such filing for reissue when the '771 patent was reviewed by the inventors and the assignee's attorney in connection

with their analysis of the patent regarding a potential infringement of the '771 patent. The detailed analysis of the claims preparatory to potential litigation caused this error to be recognized for the first time.

8. We also hereby state under 37 C.F.R. §1.175(a)(3) that we believe that the '771 patent is partly inoperative or invalid by reason of claiming both more than we had a right to claim in the patent and less than we had a right to claim in the patent.

9. Specifically, we believe that the '771 patent in claim 11 claimed more than it had a right to claim because:

a. Claim 11 recites only an assembly including (broadly stated) a housing, a multiconductor cable, retraction means urging the cable into the housing but allowing a first cable end to be pulled from the housing, and means for connecting the second cable end to an alarm system.

b. Prior art, including U.S. Patent Nos. 4,989,805, 5,094,396 and 5,535,960[1] show assemblies including a housing, a multiconductor cable, retraction means urging the cable into the housing but allowing a first cable end to be pulled from the housing, and means

[1]Although the filing and issue dates of U.S. Patent No. 5,535,960 to GTE Airfone do not make the patent prior art, the undersigned acknowledge that, insofar as relevant to their patent, the subject matter disclosed in U.S. Patent No. 5,535,960 was in public use prior to the invention of the subject matter of the '771 patent by the undersigned.

for connecting the second cable end to an electrical system. The electrical system with which those prior assemblies are used are telephone systems, and there is no teaching or suggestion of connecting them or in any manner using them with an alarm system. However, since claim 11 does not positively recite an alarm system as a part of the claimed combination, claim 11 might be interpreted in a manner which would be anticipated under 35 U.S.C. §102 by each of U.S. Patent Nos. 4,989,805, 5,094,396 and 5,535,960.

c. Claim 11 as amended in this reissue application more precisely recites the specific structure of the invention which distinguishes from such prior art by positively reciting a sensor attached to the first cable end, attachable to a product, and having two states, 1) secured when attached to the product with at least two conductors of the cable electrically connected and 2) unsecured when detached from the product with said at least two conductors electrically disconnected. This new combination is thus more in accord with the combinations recited in the other issued claims, with a sensor positively recited to positively recite structure relating to the basic environment of the invention (namely, an alarm for protecting against theft or loss of products) and thereby clearly distinguish the invention from only remotely

related prior art such as U.S. Patent Nos. 4,989,805, 5,094,396 and 5,535,960.

10. Specifically, we also believe that the claims of the '771 patent claimed less than it had a right to claim because:

a. No claims recite the following combination of elements:

a housing;

a cable having first and second conductors extending between opposite first and second ends of said cable;

means for attaching said cable first end to a product;

means for electrically connecting said first and second conductors at said first end of said cable whereby 1) said first and second conductors form an alarm loop extending from said cable second end through said first conductor to said cable first end and back through said second conductor to said cable second end when said attaching means attach said cable to a product and 2) said alarm loop is broken by detaching said cable from a product;

a connector for connecting said cable second end to an alarm system responsive to any break of the alarm loop; and

a retracting mechanism in said housing continuously urging the cable first end toward the housing yet allowing the cable first end to be pulled away from the housing when an external force is exerted on the cable first end.

b. No claims recite the following combination of elements including the elements stated in subparagraph a. hereof wherein:

the retracting mechansim continuously urges the cable first end toward the housing, and

whereby a user can grasp and pull on a product attached to the cable first end to place the product in a comfortable position with a minimum amount of cable extending from said housing.

c. No claims recite the following combination of elements including the elements stated in subparagraphs a. and b. hereof, where the recited retracting mechanism comprises:

a pulley mounted for free rotation relative to said housing and including a sensor hub and an alarm system hub

separated by a disk, said disk having a hole therein, whereby said cable extends from said cable first end into said housing where it winds around said sensor hub then extends through said pulley disk hole and winds about said alarm system hub then extends from said housing to said cable second end; and

a spring continuously biasing said pulley toward winding said cable onto said sensor hub.

d. Claims 12-14 added with this reissue application correct this error by adding claims of this appropriate scope as further set forth below.

11. With respect to the error specified in paragraphs 8 and 9 of this Declaration:

a. Upon information and belief, this error arose due to a failure of the undersigned to appreciate and communicate certain prior art to the assignee's prosecuting attorney. Specifically, the undersigned were at the time of their invention aware of cable retraction devices

used in connection with telephones. Such devices were different from the undersigned's invention because they did not in any way relate to security systems or alarms and had no sensor for detecting whether a product is connected to the cable. However, during prosecution of the application resulting in the '771 patent, a new claim was added (ultimately issuing as claim 11) in which the sensor was not recited as an element. The undersigned did not then appreciate that the new claim presented a scope of claim coverage which did not in some manner positively require an alarm system or sensor, and therefore the undersigned did not then recognize that the telephone cable retracting devices were material prior art to the invention as recited in that new claim.

b. This error continued to go uncorrected until the filing of this reissue application because no one's attention was drawn to this point until shortly before such filing for reissue when the '771 patent and its prosecution history were reviewed by the inventors and the assignee's attorney in connection with their analysis of the patent regarding a potential infringement of the '771 patent. The undersigned understood at that time that the potential infringer was a manufacturer of a telephone cable retraction device for GTE Airfone. Therefore, during the course of continuing analysis by the undersigned preparatory to potential litigation, the undersigned searched on the Internet for GTE

Airfone patents and, as a result of that search, found and obtained a copy of U.S. Patent No. 5,535,960. The undersigned then brought this matter to the attention of the assignee's attorney who, in order to be complete, also obtained copies of the references cited in the GTE Airfone '960 patent, including U.S. Patent Nos. 4,989,805 and 5,094,396, and copies of all of those references are submitted herewith in an Information Disclosure Statement.

12. With respect to the error specified in paragraphs 8 and 10 of this Declaration:

a. Upon information and belief, this error also arose due to a failure of the undersigned to appreciate and communicate certain prior art to the assignee's prosecuting attorney. Specifically, as noted above, the undersigned were at the time of their invention aware of telephone cable retraction devices. Such devices are different from the undersigned's invention because they do not in any way relate to security systems or alarms and had no sensor for detecting whether a product is connected to the cable. Therefore, the undersigned did not recognize those telephone devices to be relevant to their invention.

b. This error continued to go uncorrected until the filing of this reissue application because no one's attention was drawn to this point until shortly before such filing for reissue when the '771 patent

and its prosection history were reviewed by the inventors and the assignee's attorney in connection with their analysis of the patent regarding a potential infringement of the '771 patent. During the course of that detailed analysis preparatory to potential litigation:

1. The undersigned searched for and found a GTE Airfone patent (U.S. Patent No. 5,535,960) disclosing a prior art telephone cable retracting device as previously noted herein. In order to be complete, copies of the references cited in the GTE Airfone '960 patent were obtained, including U.S. Patent Nos. 4,989,805 and 5,094,396, and copies of all of those references are submitted herewith in an Information Disclosure Statement. Analysis that new prior art and the prosecution history of the application resulting in the '771 patent showed that arguments were made during the prosecution of the application issuing as the '771 patent which, though true and correct in distinguishing the claims from the prior art then being discussed, would not have been accurate had the additional prior art submitted herewith, particularly U.S. Patent Nos. 4,989,805, 5,094,396, 5,535,960, been of record. As a result of the misdirected focus regarding the prior art during the prosecution of the application issuing as the '771 patent, the undersigned and, upon information

and belief, the prosecuting attorney failed to recognize that the claims as presented in the application resulting in the '771 patent did not properly claim the full scope of the undersigned's invention because the claims as issued in the '771 patent were prosecuted to distinguish prior art which did not include the additional prior art submitted herewith.

2. Discovery of the error in claim 11 and discussed in this Declaration in paragraphs 5, 6 and 7 (relating to the imprecise recitation of a "secured state" resulting from a "continuous electrical path between cable ends") caused the undersigned and, upon information and belief, the assignee's attorney, to recognize that the fundamental structure of the sensor which is an important element of the combination of applicants' invention (namely, the circuit loop from the second cable end to the first cable end and back to the second cable end, and the breaking of that loop if a product is disconnected from the first cable end) was unnecessarily narrowly claimed in the claims issued in the '771 patent. Discovery of the error in claim 11 and discussed in this Declaration in paragraphs 8 and 9 (relating to the overbreadth of claim 11 in failing to recite anything relating to the sensor on the first cable end) caused the

undersigned and, upon information and belief, the assignee's attorney, to further recognize that the inventive combination would most appropriately and broadly include "means for electrically connecting" cable conductors to "form an alarm loop" (as recited in claims 12-14 submitted herewith) without unnecessarily limiting the claims to a "sensor" per se.

3. Discovery of the new prior art submitted herewith and previously noted herein relating essentially to the retraction of a cable caused the undersigned and, upon information and belief, the assignee's attorney, to recognize that yet another element of the preferred form of the present invention and distinguishing from the closest prior art among that cited herein (namely, U.S. Patent Nos. 4,989,805, 5,094,396, 5,535,960) has not been included in the claims issued in the '771 patent, namely, that the retracting mechanism continuously urges the cable first end toward the housing (as variously recited in new claims 12-14 submitted herewith). U.S. Patent Nos. 4,989,805, 5,094,396, 5,535,960 all use ratchet structures to prevent the continuous urging of their cord ends toward retraction, and thus would not provide the ideal operating characteristics of the present invention. The '771 patent erroneously failed to recite

this element ("continuous" urging) in at least one claim this aspect (continuous urging").

13. The above specified errors arose without any deceptive invention on the part of the applicant.

We further state that all statements made herein of our knowledge are true and that all statements made on information and belief are believed to be true; and further that the statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful statements may jeopardize the validity of the application or any reissue patent issuing thereon.

2/13/97
Date

Roger J. Leyden
United States Citizen
11303 German Church Road
Willow Springs, IL 60480

2-13-97
Date

Terrance J. Surma
United States Citizen
265 Oxford Lane
Bloomingdale, IL 60108

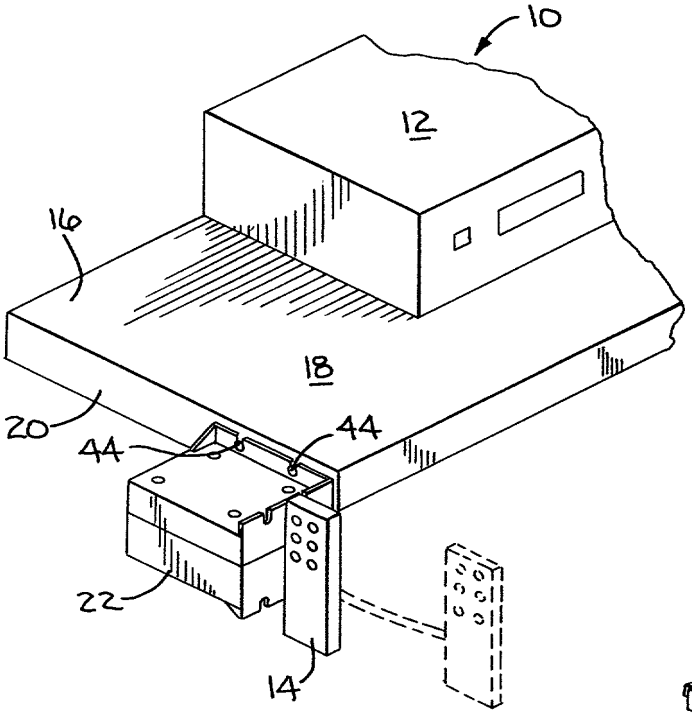

FIG. 1

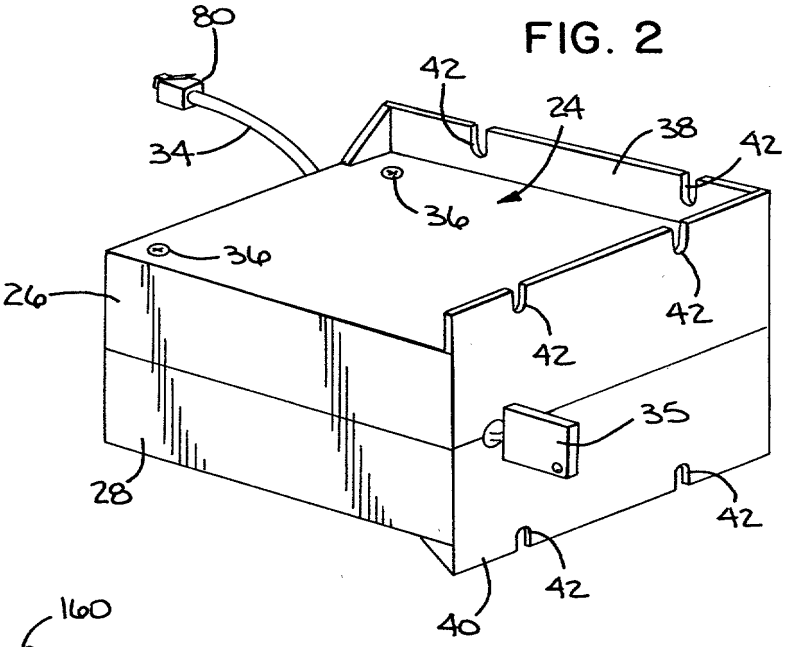

FIG. 2

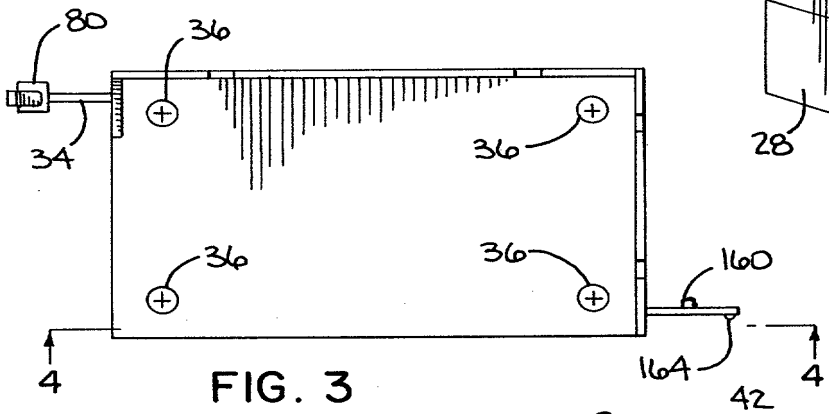

FIG. 3

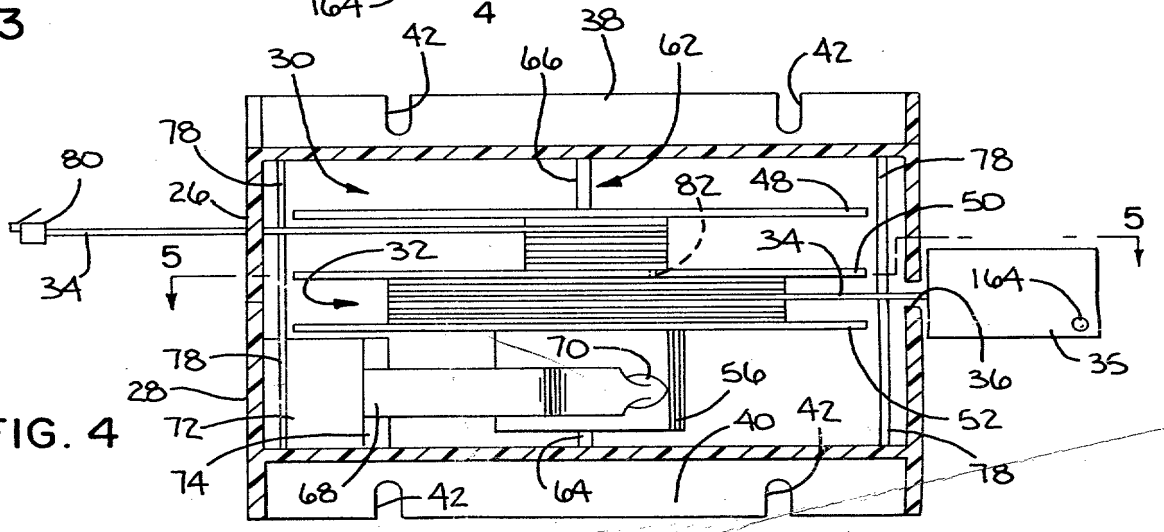

FIG. 4

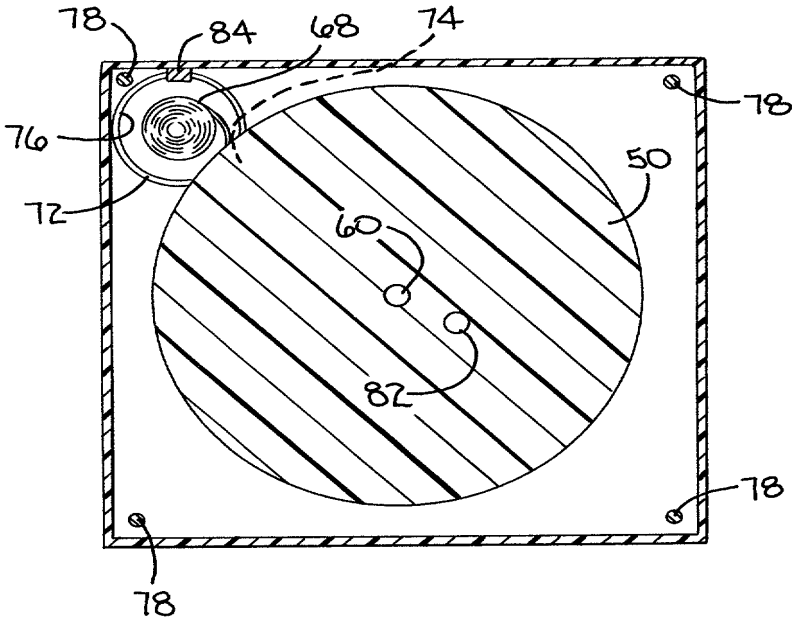

FIG. 5

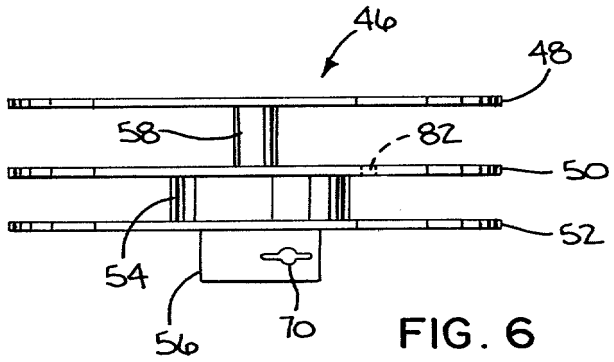

FIG. 6

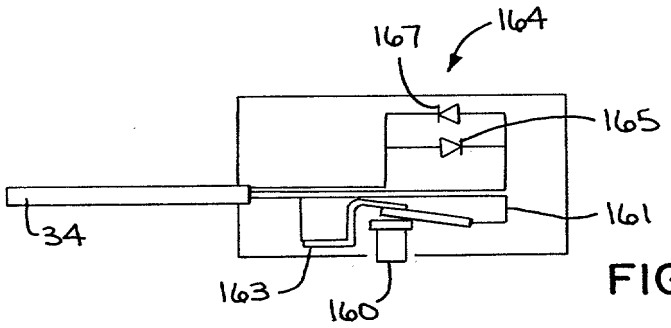

FIG. 8

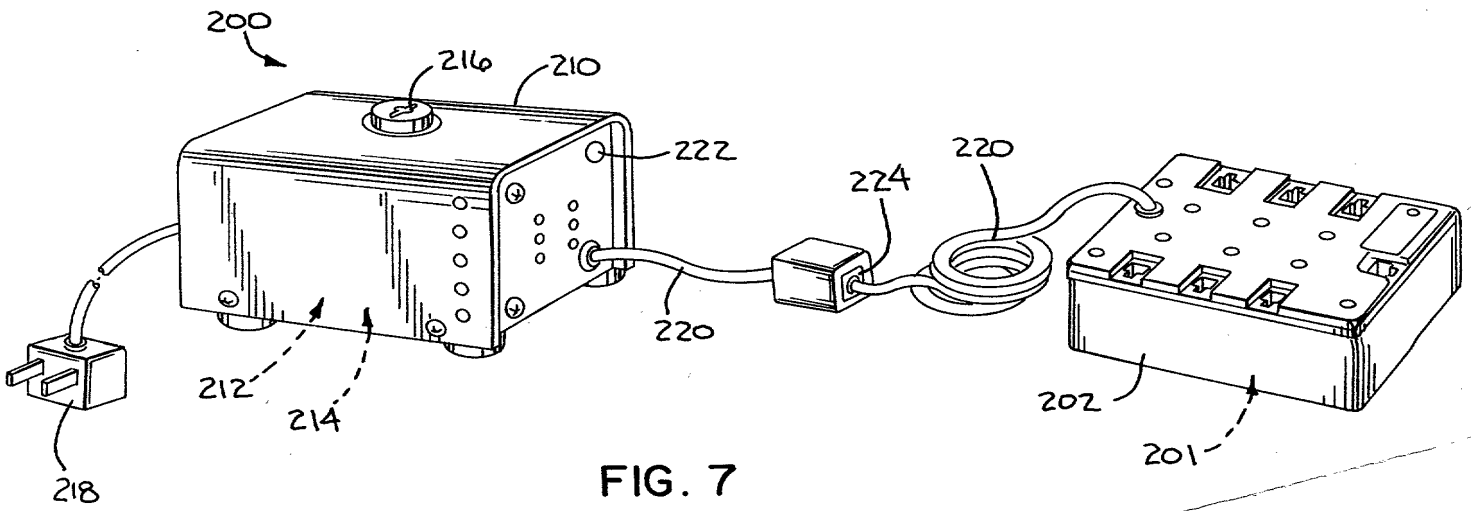

FIG. 7

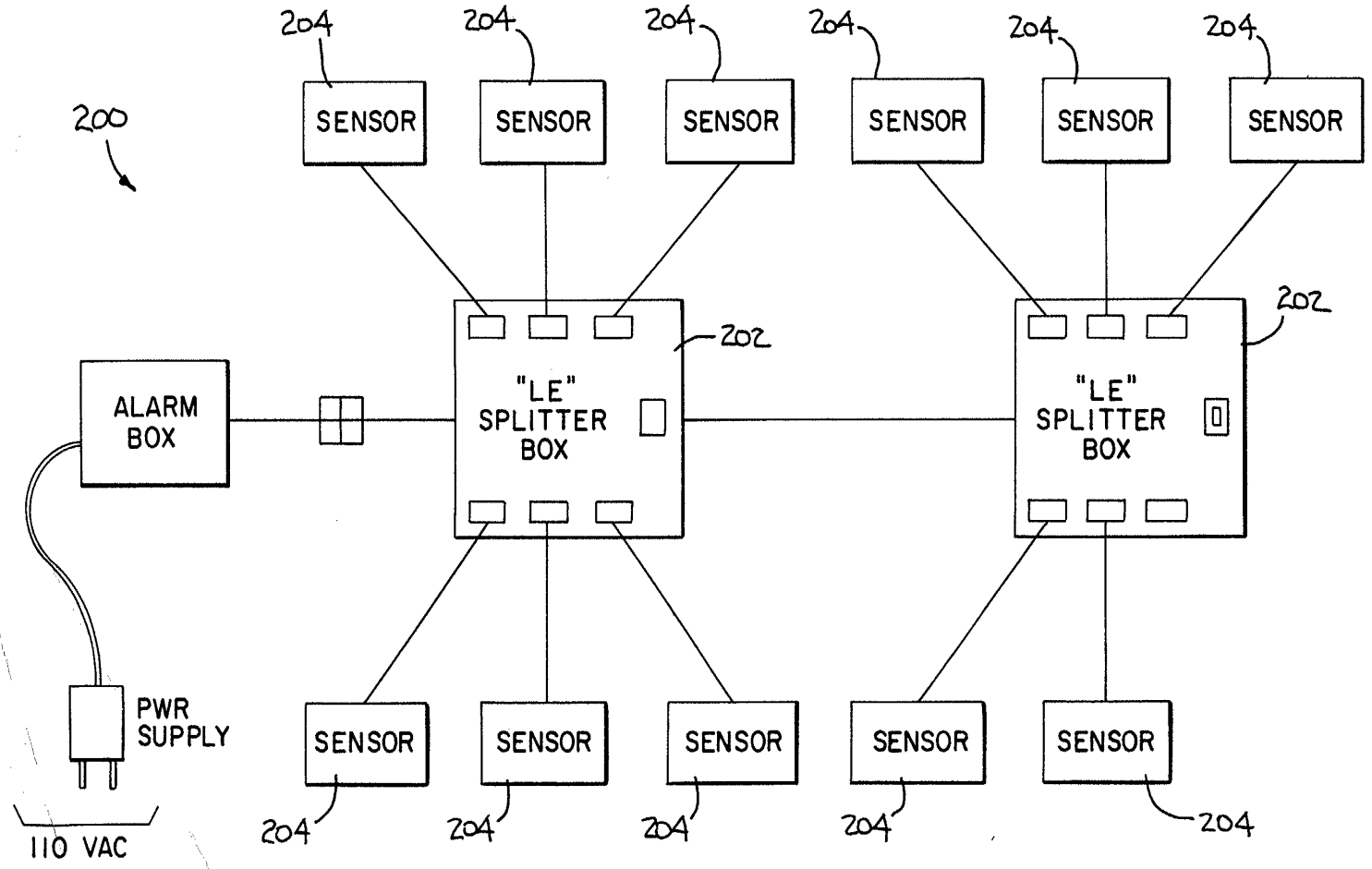

FIG. 9

831.00029
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Application of:	)	
	)	
ROGER J. LEYDEN et al.	)	
	)	RETRACTABLE SENSOR FOR
U.S. Patent No. 5,552,771	)	AN ALARM SYSTEM
	)	
Issued September 3, 1996	)	

POWER OF ATTORNEY

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

The undersigned hereby appoints Richard S. Phillips (Reg. No. 17,314), Wm. A. Van Santen (Reg. No. 22,810), Jeffrey L. Clark (Reg. No. 29,141), John S. Mortimer (Reg. No. 30,407), F. William McLaughlin (Reg. No. 32,273), and Dean A. Monco (Reg. No. 30,091), each registered to practice

CERTIFICATE OF MAILING BY "EXPRESS MAIL"

"Express Mail" mailing label number EM258141081US
Date of Deposit February 19, 1997

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Nora T. Wesley
(Typed or printed name of person mailing paper or fee)

Nora T. Wesley
(Signature of person mailing paper or fee)

before the United States Patent and Trademark Office and practicing as the firm of WOOD, PHILLIPS, VAN SANTEN, CLARK & MORTIMER, 500 West Madison Street, Suite 3800, Chicago, Illinois 60661 (Telephone (312) 876-1800), either individually or collectively, with full power of substitution and revocation, to prosecute this application, to make alterations or amendments therein, to receive the patent and to transact all business in the Patent and Trademark Office connected therewith, and direct that all correspondence be addressed to the firm. Inquiries concerning this application for patent should be directed to **JOHN S. MORTIMER.**

2/13/97
Date

Roger J. Leyden

2-13-97
Date

Terrance J. Surma